Newsletter

DEQ Watershed Management Update

Volume 2 No. 1 January/February/March 1999

This newsletter is published by the Montana Department of Environmental Quality (DEQ) in an effort to share information with local watershed planning groups. Local groups are encouraged to share their success stories with others working in the westslope region to improve and protect water quality. To publish an article in the newsletter contact Roxann Lincoln at (406) 444-7423. The newsletter is now on the internet at http://www.deq.state.m ppa.index.htm.

Brian Sugden of Plum Creek Timber Company discusses issues with DEQ staff

"Rivers are marvelous spirits. Perpetually singing and dancing, they amble merrily toward the ocean, where they rejoin their cradle and their grave, lose their identities, and are mystically transported to the tops of the mountains to begin new lives."

-Constance Elizabeth Hunt, "Down by the River"

Plum Creek and DEQ Discuss TMDLs

by Roxann Lincoln, DEQ

Staff from Plum Creek Timber Company and DEQ met for a day and half to discuss TMDLs, forestry BMPs and Plum Creek's approach to watershed analysis in the Thompson and Swan River Basins. The group toured Plum Creek properties during the afternoon of October 21 and most of October 22 looking at forestry practices and adjacent streams.

Plum Creek shared with DEQ staff a method of watershed analysis used in the state of Washington. The Washington methodology evaluates sediment inputs in a watershed and allows a manager to develop a targeted sediment reduction plan for improvement of water quality.

The methodology is based on geology and precipitation data to predict sediment delivery rates from roads and hillslopes. Actual field measurements are taken of road widths, cut and fill slopes and distance to streams to calculate sediment yields. A BMP improvement plan can then be developed which targets the biggest sediment inputs in the watershed.

Plum Creek staff are interested in meshing bull trout recovery with TMDL development on their property. Moreover, they are interested in the possibility of working with other forest landowners on a pilot TMDL for road sediment in a watershed where forest management is the dominant land use.

Monitoring studies were also discussed. Plum Creek staff shared some of their most recent research techniques with DEQ staff. The group also discussed beneficial use support and DEQ's sufficient credible data requirements.

EPA Approves Two TMDLS

EPA has approved TMDLs for Elk Creek in the Lower Clark Fork sub-basin and the Clark Fork River Voluntary Nutrient Reduction Plan (VNRP). DEQ submitted the Elk Creek TMDL in May and the VNRP was submitted in September.

The Elk Creek watershed restoration plan was developed by the Elk Creek Watershed Council in conjunction with the Green Mountain Conservation District. The plan called for restoration of native salmonids by 1) installing 3,000 linear feet (lf) of streambank fencing, 2) developing offstream stock water holes, 3) planting 5,265 lf of native riparian vegetation, 4) stabilizing 3,000 lf of streambank, and 5) enhancing recruitment of young fish into the population along the entire stream reach.

The Elk Creek plan met the requirements of a TMDL upon review by DEQ and was, therefore, submitted to EPA.

The Clark Fork River VNRP was signed by all parties on August 20, 1998 and is a ten year voluntary agreement to reduce nutrient (nitrogen and phosphorus) loading to the Upper Clark Fork River. The parties involved in the VNRP include:

- The Tri-State Implementation Council
- Clark Fork-Pend Oreille Coalition
- Butte-Silver Bow
- City of Deer Lodge
- City of Missoula
- Stone Container Corporation
- Missoula City/County Health Department
- Missoula County
- Montana DEQ

The goal of the VNRP is to restore beneficial uses and eliminate nuisance algae growth in the Clark Fork River from Warm Springs to the Flathead River confluence. In order to reach this goal, the VNRP set the following targets for the Clark Fork River mainstream:

1) 100 mg/square meter (summer mean) and 150 mg/square meter (peak) chlorophyll a, at any site, for the entire Clark Fork River area of the VNRP;
2) 20 ug/l total phosphorus upstream of the Reserve Street bridge at Missoula, where Cladophora is a problem and the 15:1 N:P ratio should be maintained;
3) 39 ug/l total phosphorus downstream of the Reserve Street bridge at Missoula; and
4) 300 ug/l total nitrogen.

For more information concerning the Elk Creek plan, contact Mike Miller at (406) 847-5560. For information concerning the Clark Fork River VNRP contact Ruth Watkins at (208) 265-9092.

A healthy stream reparian zone.

New Watershed Award Announced

by Tom Pick, DEQ/NRCS

The Montana Watershed Coordination Council announces the introduction of an award program to recognize innovative, locally-led approaches to restoring and enhancing Montana's watersheds. This annual award will be known as the Montana Watershed Stewardship Award.

Nominations will be accepted during the period January 1 through March 1, 1999. Nomination guidelines and additional information may be obtained from Tom Pick at 406-444-4765, email: tpick@mt.gov or 1409 Winne Street, Helena, MT 59601.

Anyone may nominate a watershed group or organization using the nomination process. Tentative plans are to have the award presented by the Governor in July. The award recipient will also be nominated by the Council for the National Watershed Awards offered through the Terrene Institute.

Everyone is encourage to participate in this new program to recognize the outstanding efforts that Montana's citizens contribute each year toward locally inspired watershed management.

New Watershed Assistance Grants

EPA's Office of Wetlands, Oceans and Watersheds recently awarded River Network $300,000 to distribute grants to local watershed partnerships to support organizational development.

River Network, a national organization based in Portland, Oregon, supports river and watershed advocates at the local, state, and regional levels.

The Watershed Assistance Grants program will distribute grants from $2,000 to $30,000 in 1999 to support watershed partnerships working to protect and restore their watersheds. Grant applications will be available after December 1, 1998. To request an application, please write to:

River Network
Watershed Assistance Grants Program
PO Box 8787
Portland, OR 97207

or visit their website at http://www.rivernetwork.org/nonprofi.htm.

The Montana Water Center

Established in 1964 by an act of Congress, the Montana University System Water Center at Montana State University advances water research, information, education, and problem-solving partnering throughout the state and region.

The Center is located on the campus of Montana State University-Bozeman where the Director, Dorothy Bradley, and a small staff coordinate programs. Their mission is to: 1) support and prioritize water research in Montana; 2) provide training and education for water professionals; 3) promote problem-solving partnerships among higher education, government, and the private sector to respond to water-related challenges and training needs; and 4) serve as a clearinghouse for Montana water information.

If you have ideas, give them a call at (406) 994-6690 or email them at wwwrc@montana.edu. If you want to order reading materials, contact water experts, join a watershed group, learn about whirling disease, check an event, or design a TMDL plan, the Center may be able to assist you. Also check their website at http://water.montana.edu.

Instream Boulder Clusters

From: CE Newsletter, MSU, Winter 1998

The steep, narrow St. Regis River valley in western Montana has been a major east-west transportation corridor for well over 100 years. Two abandoned railroad lines, abandoned US 10 and the present I-90 road grades, hug the banks of the river. Construction of these engineering works have forced the relocation and/or channelization of many miles of the river, greatly reducing the natural channel-form diversity considered essential by biologists for habitat health. In an effort to mitigate some of this habitat loss, different types of fishery improvement structures were installed through several miles of river reach between 1972 and 1982 as part of I-90 construction. Many of these rock structures are easily visible from the Interstate.

The most common structure employed on the St. Regis River is instream boulder clusters. Typically a boulder cluster consists of three to five tightly-spaced boulders ranging in size from three to eight feet. Several clusters are usually placed about 100 feet apart longitudinally near the deepest part of the channel creating a "cluster-set." Individual clusters influence cross-sectional sediment transport characteristics, typically creating an elongated "C" shaped scour hole surrounding the downstream side of the cluster. Often a sediment bar is created downstream of the

Canyon Ferry Reservoir.

scour hole. Considering only fish habitat, scour holes provide resting places during high flow and during migration, sediment bars may provide suitable spawning areas.

Stream restoration is a relatively new and rapidly growing area within water resources engineering. In a joint project with researchers at the Waterways Experiment Station of the Army Corps of Engineers, Dr. Otto Stein and several graduate students are studying the effects of boulder clusters in the St. Regis River. Research in progress is intended to assess long-term changes in channel morphology induced by the clusters as well as the total effect of boulder clusters, including holes and bars on channel energy dissipation and stage-discharge relationships.

Flathead Basin Commission Seeks Funding

by Roxann Lincoln, DEQ

The Flathead Basin Commission is seeking funding to continue their monitoring program for Flathead Lake. Their mission is "to protect the existing high quality of the Flathead Lake aquatic environment; the waters that flow into, out of, or are tributary to the lake; and the natural resources and environment of the Flathead Basin."

The Commission has adopted and is just starting to implement a strategy to reduce excess nutrients entering the lake through a non-regulatory and educational program. Monitoring will be essential to determine if nutrient reduction goals are being met and water quality is improving.

The monitoring program for Flathead Lake cost $140,000 a year. This cost includes sample collection, chemical analysis and data evaluation. The Montana DEQ has contributed $30,000 and Montana Power Company has contributed $5,000 towards this effort. An additional $5,000 will be provided by Montana Power Company and $10,000 by the Flathead Lakers if matched by other donations. To provide the match and the remaining funding needed $90,000 is required.

The Flathead Basin Commission is asking all of the individuals who use the lake and appreciate how important it is to Montana now and as a legacy to our children to contribute to this shortfall. Tax deductible donations can be made directly to Flathead Lakers, a non-profit organization working with the Commission, to support the monitoring program. Direct contributions can be made to the Flathead Lakers, P.O. Box 70, Polson, MT 59860.

For additional information contact the Flathead Basin Commission at 752-0081.

The Benefits of a Watershed Sediment Assessment

from Erosion Control, July/August 1998 p. 79-81

Biologists have long been studying streams and rivers to measure species richness and diversity of aquatic plant and animal communities and their habitat. These surveys have often prompted resource and wildlife managers to implement structural habitat-restoration actions in degraded watersheds, but some erosion experts say such efforts merely treat the symptoms and not the true cause of the problem - most often erosion and sedimentation.

A better approach is to conduct "upland watershed sediment-source assessments," studies that identify existing and future sediment sources. The purpose of these surveys - based on aerial photos and field observations - is "to determine future threats to the aquatic system from chronic, persistent sediment sources and from potentially catastrophic landslides and erosion during future storms and floods." The assessments describe how sediment enters stream systems, where it comes from, how much of it there is, and what portion of the sediment input can be controlled or prevented.

Analyzing aerial photos, orthophotos, maps, digital mapping data, and relevant literature is the first step in conducting a watershed sediment assessment. Historical

stereo air photos taken over several years show erosion control professionals where sediment sources are. They also point to areas that need field verification or "ground truthing." Using air photos, resource managers can map sediment sources in an entire drainage system. Land-use practices in the area can also be identified such as harvesting, grazing, quarrying, etc.

Field inventories are the next step in a watershed assessment. Guided by air photos and maps made from them, experienced field observers can identify, prioritize and map specific sites to be treated for existing or potential erosion. USGS 7.5-min. Quadrangles or larger scale GIS maps can be used to plot roads, watersheds, property boundaries, and treatment locations. Aerial photos (1:12,000 scale) are best for locating sites in the field.

Field staff try to identify roads and other sediment sources that pose a high risk of accelerated or chronic sediment production and delivery. These two factors make them prime candidates for treatment. When field staff have completed on-the-ground inventories, geologists, hydrologists and other erosion control professionals can prepare general prescriptions for each sediment source in a watershed and its tributary streams.

Finally, project planners will need to prepare an assessment report and action plan summarizing the information gathered and listing specific areas that will benefit from erosion control and prevention efforts. Entering detailed watershed field data onto printed forms and then into a computer database will facilitate reporting, analysis, planning, and cost estimation.

Watershed Funding Sources

1. **The Kongsgaard-Goldman Foundation** is a small, private foundation formed in 1988. The Foundation provides support to a wide range of non-profit organizations in the Pacific Northwest (WA, OR, ID, AK, MT and BC) in the area of environmental protection and restoration. Grants are awarded for both general operating expenses and special projects. Emphasis is on the building of grassroots organizations with the power to change their communities and improve their lives.

   There are two funding cycles and preapplications are due March 16 and September 16 annually. For proposal guidelines contact http://www.kongsgaard-goldman.org or call (206) 448-1874.

2. **The Patagonia Environmental Fund** is a grant program established by Patagonia, a company that designs and distributes outdoor clothing. The company pledges 1% of their sales each year to preservation and restoration of the natural environment. They call it their Earth Tax. They support small, grassroots activist organizations that produce measurable results.

   Proposals are accepted no later than April 30 or August 31 each year. For more information contact them at (805) 643-8616 or email at john_sterling@patagonia.com.

3. **A Territory Resource** (ATR) is a non-profit, public foundation established in 1978 to support progressive social justice and social change activities in Idaho, Montana, Oregon, Washington and Wyoming. ATR distributes approximately $700,000 in grants each year.

   Three-year support grant application deadline is January 15, 1999. Preapplication proposals can be submitted throughout the year. For application guidelines call (206) 624-4081 or write to: A Territory Resource, 603 Steward Street, #1007, Seattle, WA 98101-1229.

   For a more complete listing of private funding sources call Roxann Lincoln at (406) 444-7423.

Canada Studies Buffer Strips

by the University of Alberta

The boreal forest of Canada is one of the last continuous forests in the world. There is, however, increasing pressure from industry and government to use these forests, and equal pressure from the public to do so in a sustainable manner that maintains ecosystem integrity. To this end, forest harvesters in Alberta currently leave an uncut strip of between 30 and 100 m (98 and 328 feet) of riparian forest (a riparian buffer strip) bordering permanent lakes and streams.

Previous scientific research indicates that riparian forests may play key roles in maintaining the integrity of terrestrial and aquatic ecosystems. They may act as sinks for

overland and subsurface water flows, thereby protecting adjacent aquatic habitats from inputs of water, nutrients and sediment. Due to high nutrient concentrations and proximity to water, riparian forests are often more productive and have a greater diversity of organisms than upland forests. After harvest, riparian buffer strips containing older forest may serve as reservoirs of wildlife that depend on old-growth habitat.

Recent research, however, indicates that post-harvest edge-effects on riparian buffer strips may be negative for many species. These edge-effects may include increases in light, soil temperature, nutrient availability, and blowdown of trees, as well as changes in humidity and soil moisture. The effectiveness of a riparian buffer strip in protecting the ecosystem depends on edge-effects and the actual size of the riparian buffer strip. Research suggests that penetration of edge-effects can be extensive and that riparian buffer strips less than 100 m in width are of little value in maintaining wildlife populations. There is little research, however, on how wide riparian buffer strips should be in order to protect aquatic ecosystems and retain viable wildlife populations, and none that integrates management of wildlife populations with aquatic resources. Thus, little scientific evidence exists to support current forestry guidelines for widths of riparian buffer strips in aspen-dominated boreal forests of northern Alberta.

In Alberta, there is a unique research opportunity because the forest industry is still in the initial stages of harvesting the northern forests. The University of Alberta in Edmonton has an inter-disciplinary research project that will examine how riparian buffer strips of differing widths affect plant and animal communities in riparian and aquatic lake and streams in northern Alberta. The main objectives of the research project are to:

1) determine the effects of removal of riparian forest on lake and stream ecology in western boreal regions;

2) determine the effects of a newly created edge in vegetation, insects and small vertebrates;

3) evaluate community and population level response to varying riparian buffer strip widths;

4) examine the resilience of these ecosystems to disturbance and the importance of riparian buffer strip as keystone habitats for maintaining ecosystem functions; and

5) provide recommendations on the minimum riparian buffer width and/or watershed harvest intensity required to prevent major changes in aquatic and riparian terrestrial communities as a contribution to sustainable forest management.

DEQ Activities Update

DEQ has its sufficient credible data/ beneficial use support determination criteria available at our website - http://www.deq.state.mt.us/ppa/index.htm.

The Watershed Management Section received 21 grant proposals (319 funds) totaling over $2.8 million for nonpoint source projects in the state. The program has $700,000 available to fund the 319 grant requests.

The Monitoring and Data Management Bureau has finished sufficient credible data reviews for the following waterbodies:

Westslope Region - *Racetrack Creek, Cable Creek, Dunkleburg Creek, Peterson Creek and Tin Cup Joe Creek*
Upper Missouri Region - *Prickly Pear Creek and Golconda Creek*
Lower Missouri Region - *Redwater River, East Redwater River, Horse Creek, Pasture Creek, Casino Creek, Cottonwood Creek, Dry Wolf Creek and Beaver Creek.*
Yellowstone Region -

DEQ staff attended the Regional Conservation District meetings held across the state in an effort to begin building local partnerships for TMDL development.

East Spring Creek (Flathead Valley) has been removed from the 303(d) list based on sufficient credible data in relation to restoration activities taken by the Flathead Conservation District from 1986 to 1990.

The Planning staff is presently working on 41 different TMDLs across the state. These TMDLs are in various stages of assessment, planning, implementation and monitoring.

Publications

The Montana Lake Book *Actions You Can Take to Protect Your Watershed* is available from the Flathead Basin Commission and from Montana DEQ. The book describes how lakes function, how they are threatened and how they can be protected. It spells out some simple actions that can be taken to protect and preserve lakes. For a copy contact Mark Holston at (406) 752-0081 or Dave Martin at (406) 444-5317.

Conferences/Short Courses

1. The International Erosion Control Association is having their 30th Annual Conference & Trade Exposition February 22-26, 1999. The conference will be held in the Renaissance Hotel & the Nashville Convention Center in Nashville, Tennessee.

   Material presented will include: 1) new design options for stream channel protection, 2) new plant materials for erosion control, 3) new techniques for shoreline stabilization, and 4) new sources of erosion and sediment control products (120 product manufacturers).

   For complete conference information, please choose any of the following options:

   a. Register online at http://www.ieca.org
   b. Call toll free 1-800-871-6022 and request document #101.
   c. Email at ecinfo@ieca.org and request conference information.

2. The Montana Consensus Council is offering a 2-day short course called Breaking the Impasse: from Conflict to Collaboration. Are you frustrated by public meetings and hearings that leave you wondering how to address a sea of conflicting demands? Too often at odds with the people you are trying to help? Is more of your time spent fending off criticism, rather than working side-by-side with people to reach solutions that satisfy everyone? Then you should consider this 2-day course.

   The short course will be offered in Helena at Carroll College Campus Center on January 19-20, 1999 and in Polson at the KwaTaqnuk Resort on May 3-4, 1999. Day 1 will be devoted to material on participating in a collaborative process and day 2 to planning and managing a collaborative process. The course will be taught using a team approach by the Montana Consensus Council and the Consensus Institute based in Cambridge, Massachusetts. The $250 tuition includes lunch on the first day, refreshments during breaks, course materials, and a handbook on processes to build agreement.

   To register or for more information, contact Nedra Chandler at (406) 444-4457.

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WANT TO BE ON THE MAILING LIST?

If you would like to be on the mailing list, please call **Roxann Lincoln at (406) 444-7423**, or fill out this form and return to:

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